

Appl. No. 10/734,691
Amdt. Dated 7/24/2007
Reply to Office action of June 27, 2007

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REMARKS/ARGUMENTS

This Amendment is in response to the Office Action mailed June 27, 2007.

In the Office Action, claims 19-27 stand rejected under 35 U.S.C. § 101 and claims 1-36 stand rejected under 35 U.S.C. § 103.

Applicant has amended independent claims 1, 10, 19, and 28 to further clarify embodiments of the invention.

Reconsideration in light of the amendments and remarks made herein is respectfully requested.

Rejection Under 35 U.S.C. § 101

Claims 19-27 stand rejected under 35 U.S.C. § 101 because the claimed invention is allegedly directed to non-statutory subject matter.

Applicant has amended claims 19-27 such that they recite a machine-readable medium of a storage device having tangibly stored thereon instructions...to address the Examiner's rejection.

Applicant respectfully submits that this amendment overcomes the Examiner's 35 U.S.C. § 101 rejection and respectfully requests that the Examiner remove this ground for rejection.

Rejection Under 35 U.S.C. § 103

Claims 1, 2, 5, 10, 14, 19, 20, 23, 28, and 32 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over U.S. Patent No. 6,512,837 issued to Ahmed (hereinafter Ahmed) in view of U.S. Patent No. 6,614,914 issued to Rhoads et al. (hereinafter Rhoads). Claims 3 and 21 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads and further in view of U.S. Pub. No. 2003/0026422 issued to Gerheim et al. (hereinafter Gerheim). Claims 4, 13, 22, and 31 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads and in view of U.S. Patent No. 6,463,162 issued to Vora (hereinafter Vora). Claims 6, 15, 24, and 33 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads and U.S. Pub. No. 2002/0057823 to Sharma et

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al. (hereinafter Sharma). Claims 7-9, 16-18, 25-27, and 34-36 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads and Sharma and in view of U.S. Patent No. 7,187,781 to Hayashi (hereinafter Hayashi). Claims 11 and 29 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads and in view of U.S. Pub. No. 2003/0140232 to De Lanauze et al. (hereinafter De Lanauze). Claims 12 and 30 stand rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Ahmed in view of Rhoads in view of de Lanauze and in view of Gerheim.

Applicant has amended independent claims 1, 10, 19, and 28 such that they all at least generally recite...partitioning a cover image *into non-overlapping blocks*...generating a key...*spatially dispersing a watermark symbol utilizing the key*...inserting the spatially dispersed watermark symbol into the cover image utilizing a Walsh transform...and extracting the watermark symbol from the cover image *utilizing a Walsh transform and the key*.

In the previous Office Action, the Examiner recognizes that Ahmed does not teach or suggest a Walsh transform (Office Action, page 4). However, the Examiner asserts that Rhoads teaches inserting/extracting a watermark into/from an image utilizing a Walsh transform and cites column 10, lines 24-26, Figure 1, and column 37, lines 35-53 of Rhoads for this assertion.

Applicant respectfully traverses this assertion.

Applicant respectfully submits that these sections of Rhoads do not describe, teach, or suggest a Walsh transform. A Walsh transform is not described or utilized in the Rhoads reference at all. Applicant has searched the Rhoads reference and can find no teaching or suggestion of the use of a Walsh transform. If the Examiner disagrees with the Applicant, the Applicant respectfully requests that the Examiner cite the specific section of Rhoads that describes a Walsh transform. Applicant can find none.

Moreover, Applicant cannot find a description, teaching, or suggestion of the use of a Walsh transform for inserting *a spatially dispersed watermark symbol into a cover image* or *extracting a watermark signal from a cover image utilizing a Walsh transform and a key* in the other references cited by the Examiner. In particular, Applicant has reviewed the other

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references cited by the Examiner: Rhoads, Sharma and Hayashi; and cannot find any description, teaching, or suggestion of the use of a Walsh transform.

In Applicant's patent application, Applicant has set forth a description and the advantages of the use of a Walsh transformation. Below, Applicant has reproduced from page 8, paragraphs 52-56 giving a brief summary of the Walsh transformation, its use, and advantages:

[0052] Also a brief description of the Walsh Transform will now be given. Assuming that there are $N=2^n$ number of points in a one dimensional discrete signal $f(x)$ (where n is positive integer), the discrete Walsh transform (DWT) denoted by $W(u)$ is defined as:

$$W(u) = \frac{1}{N} \sum_{x=0}^{N-1} f(x) \prod_{i=0}^{n-1} (-1)^{b_i(x)b_{i-1}(u)}$$

[0053] Where $b_k(z)$ is the k -th bit in binary representation of z . See, for example, Gonzalez and Woods, Digital Image Processing, Addison-Wesley, New York, 1992. Hence the forward kernel of the one-dimensional discrete Walsh transform may be expressed as:

$$g(x, u) = \frac{1}{N} \prod_{i=0}^{n-1} (-1)^{b_i(x)b_{i-1}(u)}$$

[0054] The Walsh transformation kernel is a symmetric matrix having orthogonal rows and columns. This property leads to an inverse kernel that is identical to forward kernel, except for the constant multiplicative factor of $1/N$.

[0055] Accordingly, the inverse Walsh transform kernel is

$$h(x, u) = \prod_{i=0}^{n-1} (-1)^{b_i(x)b_{i-1}(u)}$$

and the inverse Walsh transform is

$$f(x) = \sum_{u=0}^{N-1} W(u) \prod_{i=0}^{n-1} (-1)^{b_i(x)b_{i-1}(u)}$$

[0056] An advantage of the Walsh transformation over other unitary transforms, such as the Fourier transform, which have a kernel of complex exponential terms, is that the Walsh transform kernel consists of only a signed integer value +1 and -1, which does not require floating point multiplication during implementation.

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Applicant's have uniquely utilized the Walsh transformation for inserting and extracting watermark symbols from images.

None of the references cited by the Examiner set forth the use of a Walsh transformation for such purposes.

More particularly, Applicant respectfully submits that Ahmad, Rhoads, Sharma, and Hayashi, either alone, or in combination, do not describe, teach, or suggest the limitations of Applicant's amended independent claims 1, 10, 19, and 28 which at least generally recite...partitioning a cover image *into non-overlapping blocks*...generating a key...*spatially dispersing a watermark symbol utilizing the key*...inserting the spatially dispersed watermark symbol into the cover image utilizing a Walsh transform...and extracting the watermark symbol from the cover image *utilizing a Walsh transform and the key*.

These limitations are quite simply not described, taught, or suggested by the references of record.

Therefore, Applicant respectfully submits that independent claims 1, 10, 19, and 28 and the claims that depend therefrom are non-obvious and should be allowable. Applicant respectfully requests that the Examiner pass these claims to issuance.

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Conclusion


In view of the remarks made above, it is respectfully submitted that pending claims 1-36 are allowable over the prior art of record. Thus, Applicant respectfully submits that all the pending claims are in condition for allowance, and such action is earnestly solicited at the earliest possible date. The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application. To the extent necessary, a petition for an extension of time under 37 C.F.R. is hereby made. Please charge any shortage in fees in connection with the filing of this paper, including extension of time fees, to Deposit Account 02-2666 and please credit any excess fees to such account.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 7/24/2007

By


Eric T. King
Reg. No. 44,188
Tel.: (714) 557-3800 (Pacific Coast)

Attachments

12400 Wilshire Boulevard, Seventh Floor
Los Angeles, California 90025

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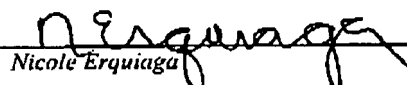
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Nicole Erquiaga
7/24/2007
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